

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for monitoring a light path between a source optical node and a destination optical node in an Optical Communication Network (OCN) comprising a plurality of optical nodes where at least two optical nodes are interconnected by optical supervisory channels, said optical communication network having an associated control network using a Command-Line Interface (CLI), the method comprising the steps of:

modulating a wavelength with an optical signature detectable in the optical domain, the optical signature defining said light path;

executing a first procedure ~~called Trace~~ for identifying a first sequence of optical nodes currently receiving said optical signature tracing an existing light path between the source node and the destination node in the OCN;

executing a second procedure ~~called Walk~~ for identifying a potential light path second sequence of optical nodes provisioned to form said light path between the source optical node and the destination optical node ~~in the OCN;~~

executing a third procedure ~~called Global-Discovery~~ based on a step of flooding of enquiry messages for identifying the nodes that are traversed by the light path existing between the source node and the destination node in the OCN each optical node in said plurality of optical nodes that detects said optical signature; and

executing a fourth procedure ~~called Local-Discovery~~ for identifying the nodes that are traversed by the light path existing between the source node and the destination node in the OCN each optical node from among said at least two optical nodes that detects said optical signature;

wherein the ~~light path to be monitored includes a start node where monitoring is invoked through the CLI-said first procedure, second procedure, third procedure, and fourth procedure are initiated at a command-line interface of a selected start optical node determined to belong to said light path.~~

2. (Currently amended) The ~~[[A]] method as-claimed-in~~ of claim 1 ~~[[,]]~~ wherein the step of executing ~~the said first procedure called Trace~~ comprises the steps of:

constructing lists a current list of optical nodes comprising said first sequence of optical nodes that are on the light path to be monitored; and

displaying said lists list of optical nodes.

3. (Currently amended) The ~~[[A]] method as-claimed-in~~ of claim 2 ~~[[,]]~~ wherein the step of constructing the current list lists of optical nodes ~~[[,]]~~ comprises the steps of:

constructing a first list of optical nodes that are currently traversed in sequence by the light path from ~~the said selected~~ start optical node to the source optical node as RESULT_LIST1; and

constructing ~~the a~~ second list of optical nodes that are currently traversed in sequence by the light path from ~~the said selected~~ start optical node to the destination optical node as RESULT_LIST2.

4. (Currently amended) ~~The~~ [[A]] method as-claimed-in of claim 3, wherein the step of constructing RESULT_LIST1 said first list comprises the step of identifying all optical nodes pre-provisioned to be on the light path that have detected and processed said optical signature a wavekey corresponding to the light path wherein the wavekey is a signature that uniquely identifies the light path.

5. (Currently amended) ~~The~~ [[A]] method as-claimed-in of claim 3 ~~[[,]]~~ wherein the step of constructing RESULT_LIST2, said second list comprises the step of identifying all optical nodes pre-provisioned to be on the light path that have detected and processed said optical signature the wavekey corresponding to the light path wherein the wavekey is a signature that uniquely identifies a light path.

6. (Currently amended) ~~The~~ [[A]] method ~~as-claimed-in~~ of claim 3 [[,]] wherein the step of displaying said current list of optical nodes comprises the step of displaying said first list and said second list RESULT_LIST1 and RESULT_LIST2.

7. (Currently amended) ~~The~~ [[A]] method ~~as-claimed-in~~ of claim 1, wherein the said second procedure ealled Walk comprises the steps of:

constructing lists a reference list of optical nodes comprising said second sequence of optical nodes that are provisioned with expected wavekey to be present on the light path to be monitored; and

displaying said lists reference list of optical nodes.

8. (Currently amended) ~~The~~ [[A]] method ~~as-claimed-in~~ of claim 7~~[[,]]~~ wherein the step of constructing lists ~~said reference list~~ of nodes ~~that are provisioned with expected wavekey to be present on the light path to be monitored~~ comprises the steps of:

constructing ~~the~~ a third list of optical nodes that are provisioned to ~~be present with expected wavekey~~ on the light path from ~~the~~ said selected start optical node to the source optical node as RESULT_LIST1; and

constructing ~~the~~ a fourth list of optical nodes that are provisioned to be present on the light path from ~~the~~ said selected start optical node to the destination optical node as RESULT_LIST2.

9. (Currently amended) ~~The~~ [[A]] method ~~as-claimed-in~~ of claim 8, wherein the step of constructing RESULT_LIST1 said third list comprises the step of identifying optical nodes that are provisioned to process the expected wavekey corresponding to the light path, wherein the wavekey is a signature that uniquely identifies the light path said optical signature.

10. (Currently amended) ~~The~~ [[A]] method ~~as-claimed-in~~ of claim 8~~[[,]]~~ wherein the step of constructing RESULT_LIST2 said fourth list comprises the step of identifying optical nodes that are provisioned to process the expected wavekey corresponding to the light path, wherein the wavekey is a signature that uniquely identifies the light path said optical signature.

11. (Currently amended) ~~The~~ [[A]] method as claimed in of claim 7 ~~[[,]]~~ wherein the step of displaying the lists said reference list of optical nodes comprises the step of displaying said third list and said fourth list ~~RESULT_LIST1 and RESULT_LIST2~~.

12. (Currently amended) The ~~[[A]] method as claimed in~~ of claim 1 ~~[[,]]~~ wherein the said third procedure called Global Discovery comprises the steps step of:

~~flooding the OCN; and~~

~~displaying a list of optical nodes traversed by the light path which detect said optical signature in response to said enquiry messages.~~

13. (Currently amended) The ~~[[A]] method as claimed in~~ of claim 12 ~~[[,]]~~ wherein the step of ~~flooding the OCN~~ comprises the steps of:

~~retrieving the a list of all optical nodes in the OCN said plurality of optical nodes from the CN (Control Network [D]) topology information; and~~

~~sending messages to said all the optical nodes enquiring whether they have processed the wavekey corresponding to the light path; and~~

~~requesting all the nodes that have detected the wavekey to reply back to the start node with an affirmative acknowledgement requesting confirmation of detecting said optical signature.~~

14. (Currently amended) The ~~[[A]] method as claimed in~~ of claim 1 ~~[[,]]~~ wherein the said fourth procedure called Local Discovery comprises the steps of:

~~constructing lists a specific list of optical nodes detected via local which detect said optical signature in response to a process of neighbour discovery; and~~

~~displaying said specific list of optical nodes a list of nodes traversed by the light path.~~

15. (Currently amended) ~~The~~ [[A]] method as claimed in of claim 14 ~~[[,]]~~ wherein the step of constructing lists said specific list of optical nodes ~~detected via local neighbour discovery~~ comprises the steps step of:

~~sending messages to all a message to each~~ neighbouring optical node[[s]] discovered via topology information maintained by the CN-(Control Network [[]]) topology information, said message requesting:

confirmation of detecting said optical signature; and

relaying said message to another optical node

~~enquiring whether they have processed the wavekey corresponding to the light path; and
requesting all the nodes that have detected and processed the wavekey to request their
neighbouring nodes (discovered via the CN topology information) to reply back to the
start node if they have processed the wavekey.~~

16. (Currently amended) A system for monitoring a light path between a source optical node and a destination optical node in an Optical Communication Network (OCN) using a Command Line Interface (CLI); comprising a plurality of optical nodes where at least two optical nodes are interconnected by optical supervisory channels, said optical communication network having an associated control network, the system comprising:

means for modulating a wavelength with an optical signature detectable in the optical domain, the optical signature defining said light path;

a first means for identifying a first sequence of optical nodes currently receiving said optical signature ~~executing a procedure called Trace for tracing an existing light path between the source node and the destination node in the OCN;~~

a second means for executing a procedure called Walk for identifying a potential second sequence of optical nodes provisioned to form said light path between the source optical node and the destination optical node in the OCN; and

a third means for executing a procedure called Global Discovery for identifying each optical node in said plurality of optical nodes that detects said optical signature based on disseminating enquiry messages ~~the nodes that are traversed by the light path existing between the source node and the destination node in the OCN; and~~

a fourth means for executing a procedure called Local Discovery for identifying each optical node from among said at least two optical nodes that detects said optical signature the nodes that are traversed by the light path existing between the source node and the destination node in the OCN;

wherein the light path to be monitored includes a start node where monitoring is invoked through the CLI said first means, second means, third means, and fourth means are provided at a command-line interface of a start optical node determined to belong to said light path.

17. (Currently amended) The [[A]] system as claimed in of claim 16, wherein the first means for executing the procedure called Trace comprises:

means for constructing ~~lists~~ a list of optical nodes comprising said first sequence of optical nodes that are on the light path to be monitored; and

means for displaying said ~~lists~~ list of optical nodes.

18. (Currently amended) The [[A]] system as claimed in of claim 17, wherein the means for constructing the ~~lists~~ list of optical nodes comprises:

means for constructing a first list of optical nodes that are currently traversed in sequence by the light path from the start optical node to the source optical node, as RESULT_LIST1; and

means for constructing the a second list of optical nodes that are currently traversed in sequence by the light path from the start optical node to the destination optical node, as RESULT_LIST2.

19. (Currently amended) The [[A]] system as claimed in of claim 18, wherein the means for constructing RESULT_LIST1 said first list comprises:

means for identifying each optical node that has processed said optical signature all nodes that have processed a wavekey corresponding to the light path, wherein the wavekey is a signature that uniquely identifies the light path.

20. (Currently amended) ~~The~~ [[A]] system ~~as claimed in~~ of claim 18, wherein the step of constructing RESULT_LIST2 said second list comprises:

means for identifying ~~each optical node that has processed said optical signature~~ all nodes that have used the wavekey corresponding to the light path, wherein the wavekey is a signature that uniquely identifies a light path.

21. (Currently amended) ~~The~~ [[A]] method ~~as claimed in~~ of claim 17, 18 wherein the means for displaying the list of optical nodes comprises means for displaying said first list and said second list RESULT_LIST1 and RESULT_LIST2.

22. (Currently amended) ~~The~~ [[A]] system ~~as claimed in~~ of claim 16, wherein the second means ~~for executing the procedure called Walk~~ comprises:

means for constructing lists a list of optical nodes that are provisioned with said optical signature expected wavekey to be present on the light path to be monitored; and

means for displaying said lists of optical nodes.

23. (Currently amended) ~~The~~ [[A]] system ~~as claimed in~~ of claim 22, wherein the means for constructing lists a list of optical nodes that are provisioned with said optical signature expected wavekey to be present on the light path to be monitored comprises:

means for constructing ~~the~~ a third list of optical nodes that are provisioned with expected wavekey to be present on the light path said optical signature from the start optical node to the source optical node as RESULT_LIST1; and

means for constructing a fourth list of optical nodes that are provisioned with said optical signature expected wavekey to be present on the light path from the start optical node to the destination optical node as RESULT_LIST2.

24. (Currently amended) ~~The~~ [[A]] system ~~as claimed in~~ of claim 23, wherein the means for constructing RESULT_LIST1 said third list comprises:

means for identifying optical nodes that are provisioned with said optical signature
~~expected-wavekey to process the wavekey corresponding to the light-path, wherein the~~
~~wavekey is a signature that uniquely identifies the light-path.~~

25. (Currently amended) ~~The~~ [[A]] system ~~as claimed in~~ of claim 23, wherein the means for
constructing RESULT_LIST2 said fourth list comprises:

means for identifying optical nodes that are provisioned with said optical signature
~~expected-wavekey to process the wavekey corresponding to the light-path, wherein the~~
~~wavekey is a signature that uniquely identifies the light-path.~~

26. (Currently amended) ~~The~~ [[A]] system ~~as claimed in~~ of claim 16, wherein the third means for
~~executing the procedure called Global Discovery~~ comprises:

means for flooding enquiry messages into the optical communication network OCN; and

means for displaying a list of optical nodes ~~traversed by the light-path which detect said~~
optical signature in response to said enquiry messages.

27. (Currently amended) ~~The~~ [[A]] system ~~as claimed in~~ of claim 26, wherein the means for
flooding ~~of the OCN~~ comprises:

means for retrieving ~~the~~ a list of all optical nodes in the OCN plurality of optical nodes
from the CN-(Control Network [D]) topology information; and

means for sending messages to said all the optical nodes requesting confirmation of
detecting said optical signature enquiring whether they have processed the wavekey
corresponding to the light-path; and

means for ~~requesting all the nodes that have detected the wavekey to reply back to the~~
start node with an affirmative acknowledgement.

28. (Currently amended) ~~The~~ [[A]] system ~~as claimed in~~ of claim 16, wherein the fourth means
for ~~executing the procedure called Local Discovery~~ comprises:

means for constructing lists a specific list of optical nodes ~~detected via local~~ which detect
said optical signature in response to a process of neighbour discovery; and

means for displaying said specific list of optical nodes ~~a list of nodes traversed by the light-path.~~

29. (Currently amended) The [[A]] system ~~as claimed in~~ of claim 28, wherein the means for constructing lists said specific list of optical nodes ~~detected via local neighbour discovery~~ comprises:

means for sending ~~messages to all~~ a message to each neighbouring optical node nodes discovered via the CN-(Control Network [[D]]) topology requesting:

confirmation of detecting said optical signature; and

relaying said message to another optical node

~~enquiring whether they have detected and processed the wavekey corresponding to the light path; and~~

means for requesting ~~all the nodes that have detected and processed the wavekey to request their neighbouring nodes (discovered via the CN topology information) to reply back to the start node if they have processed the wavekey.~~